

Compression in Spatial Deep Learning

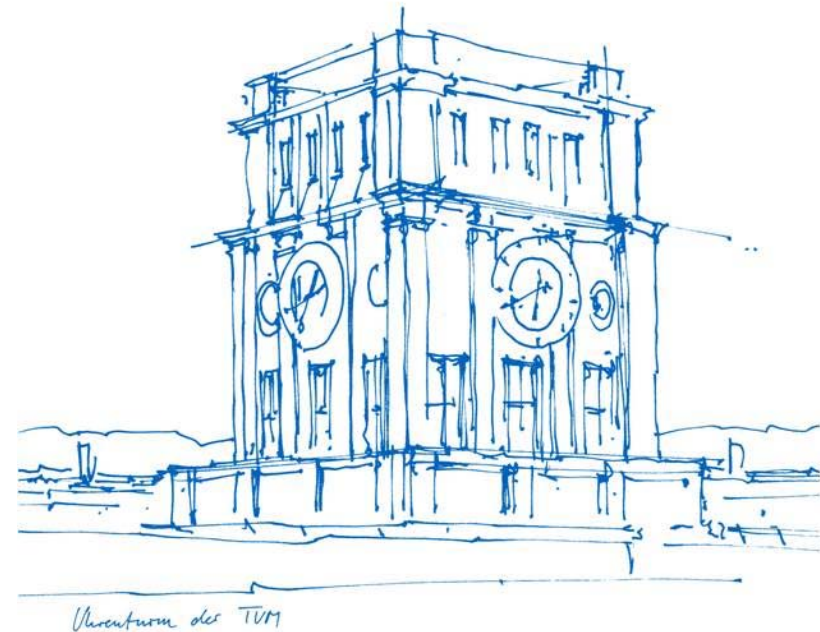
Gabriel Dax

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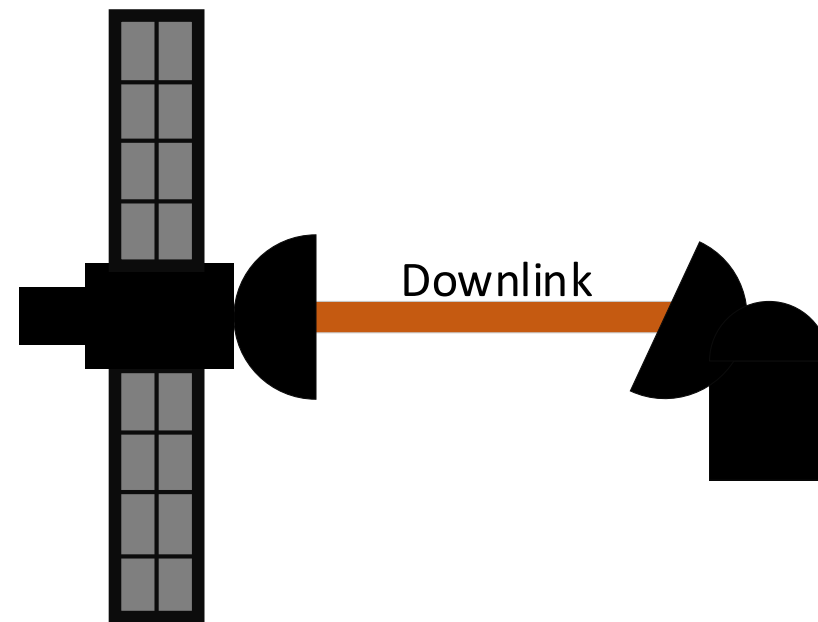
TUM School of Engineering and Design

Professorship for Geospatial Data Management

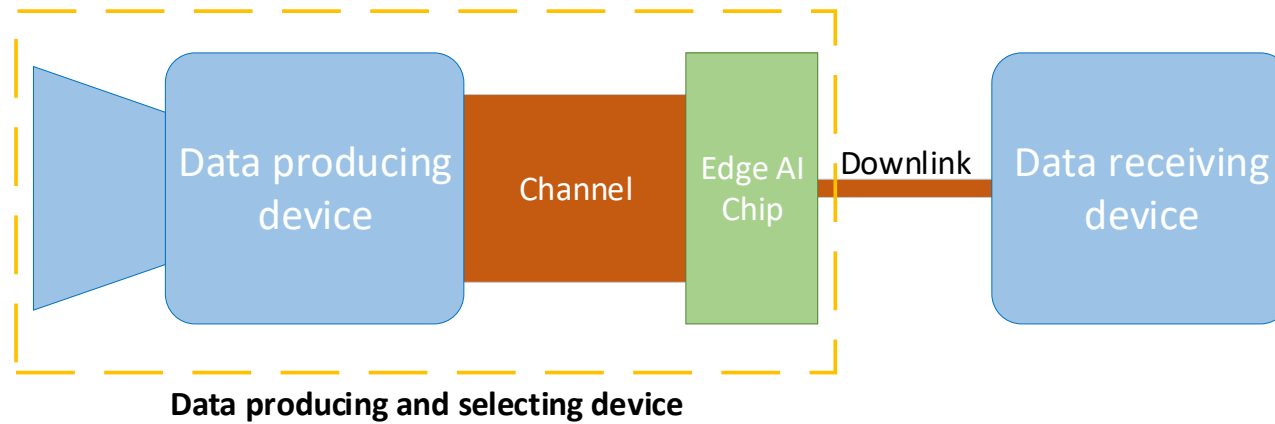


Munich, March 16, 2023

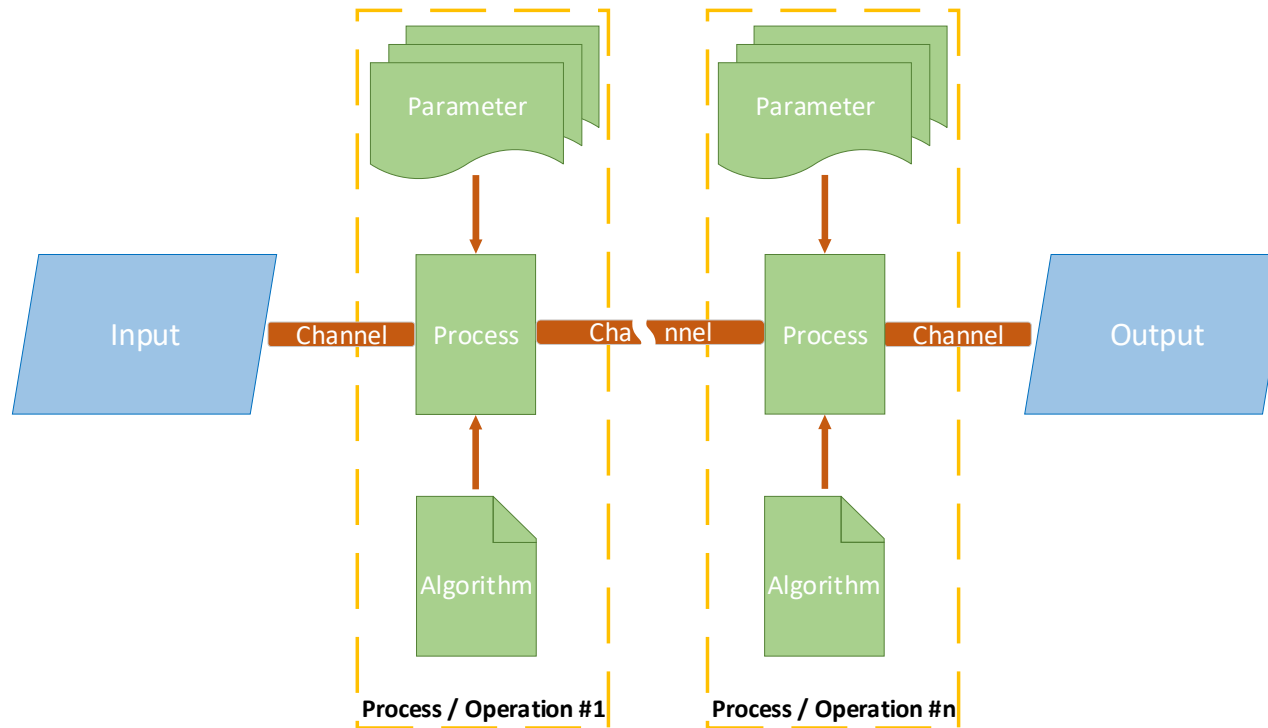
Classical Deployment in Geoscience



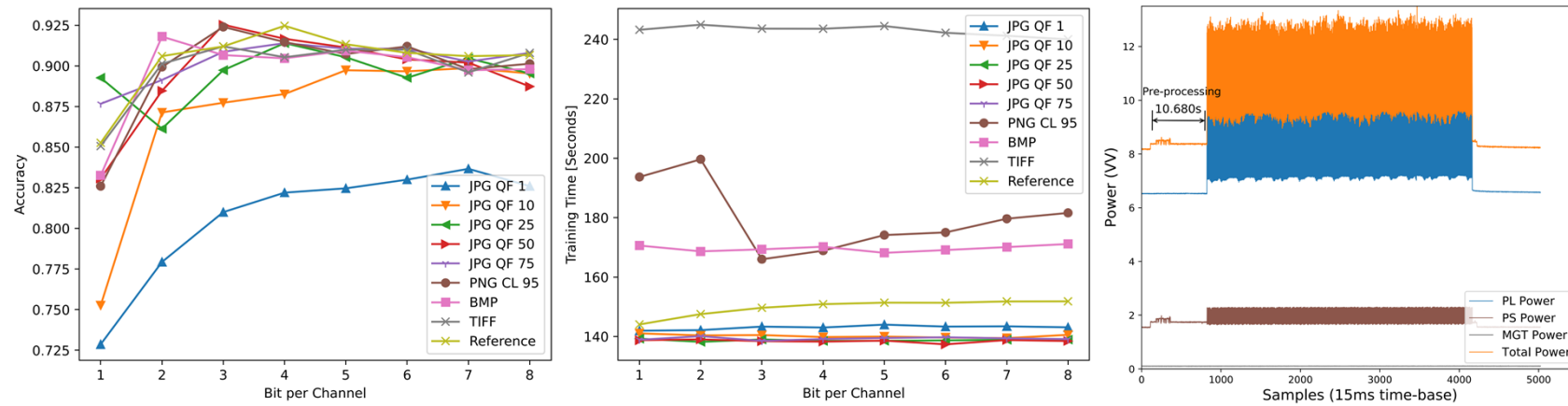
Edge AI



Machine Learning Architecture



Optimize Network Throughput



Further reading:

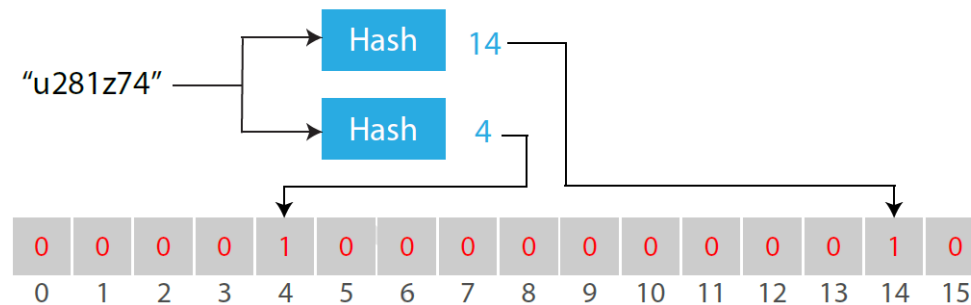
Dax, G., Nagarajan, S., Li, H., & Werner, M. (2023). Compression Supports Spatial Deep Learning. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 16, 702–713. <https://doi.org/10.1109/ISTARS.2022.3226563>

Bloom Filter Aggregated Cell Representation



Feature 1: "AGACH"

Feature 2: ["u281z74", "u281z77", ... , "u281z7n"]



Further reading:

Dax, G., & Werner, M. (2021). Trajectory Similarity using Compression. 2021 22nd IEEE International Conference on Mobile Data Management (MDM), 169–174.

Werner, M. (2015). BACR: Set Similarities with Lower Bounds and Application to Spatial Trajectories. In 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2015).

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Thank you very much!

